

**Amendments to the Claims:**

Please amend claims 1, 17, and 22 and as follows. Please add new claims 24-28.

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

1. (Currently Amended) An adjuvant comprising a purified and attenuated toxin, wherein the purified and attenuated toxin is obtained by a method comprising ~~the steps of~~:
  - (a) purifying a natural toxin selected from the group consisting of pertussis toxin, heat-labile toxin of pathogenic *E. coli*, Staphylococcus  $\alpha$  toxin and  $\beta$  toxin, and thermostable hemolytic toxin of *Vibrio parahaemolyticus*, or a mutant toxin selected from the group consisting of a mutant cholera toxin, ~~a mutant pertussis toxin~~, a mutant heat-labile toxin of pathogenic *E. coli*, a mutant Staphylococcus  $\alpha$  toxin and  $\beta$  toxin, and a mutant thermostable hemolytic toxin of *Vibrio parahaemolyticus* to 95% or more purity; and
  - (b) attenuating the purified natural or mutant toxin obtained in step (a) by incubation in the presence of formalin, wherein the purified and attenuated toxin has:
    - (i) a residual toxic activity of less than one-two thousandth ( $<1/2000$ ) that of the natural toxin corresponding thereto, and
    - (ii) an activity of enhancing production of an antibody specific to an antigen other than the attenuated toxin, and retains serine residues, glutamic acid residues, and lysine residues of the natural toxin in its amino acid sequence, except that a formalin molecule is bound to the lysine residues of the purified and attenuated toxin.
2. (Previously Presented) The adjuvant of claim 1, wherein said purified and attenuated toxin is a mutant having an amino acid sequence of the corresponding natural toxin wherein one or more amino acid residues are substituted, inserted, deleted, and/or added,

and having an adjuvant activity, so long as the mutant retains serine residues, glutamic acid residues, and lysine residues of the natural toxin, except that a formalin molecule is bound to the lysine residues of the attenuated toxin.

3. (Previously Presented) The adjuvant of claim 1, wherein said purified and attenuated toxin retains the amino acid sequence of the natural toxin, except that a formalin molecule is bound to the lysine residues of the attenuated toxin.

Claims 4-6 (Canceled)

7. (Previously Presented) The adjuvant of claim 1, wherein said residual toxic activity is less than one-ten thousandth (1/10,000) that of said corresponding natural toxin.

Claims 8-15 (Canceled)

16. (Previously presented) The adjuvant of claim 1, wherein the incubation in step (b) occurs at a temperature that does not exceed 40°C.

17. (Currently Amended) A method of obtaining a purified and attenuated toxin, comprising:

- (a) purifying a natural toxin selected from the group consisting of cholera toxin, pertussis toxin, heat-labile toxin of pathogenic *E. coli*, Staphylococcus  $\alpha$  toxin and  $\beta$  toxin, and thermostable hemolytic toxin of *Vibrio parahaemolyticus*, or a ~~mutant toxin thereof~~ a mutant toxin selected from the group consisting of a mutant cholera toxin, a mutant heat labile toxin of pathenogenic *E. coli*, a mutant Staphylococcus  $\alpha$  toxin and  $\beta$  toxin, and a mutant thermostable hemolytic toxin of *Vibrio parahaemolyticus* to 95% or more purity; and
- (b) attenuating the purified natural or mutant toxin obtained in step (a) by incubation in the presence of formalin at a temperature of 5°C to 40°C, wherein the purified and attenuated toxin has:
- (i) a residual toxic activity of less than one-two thousandth (<1/2000) that of the natural toxin corresponding thereto, and

- (ii) an activity of enhancing production of an antibody specific to an antigen other than the attenuated toxin, and retains serine residues, glutamic acid residues, and lysine residues of the natural toxin in its amino acid sequence, except that a formalin molecule is bound to the lysine residues of the purified and attenuated toxin.
18. (Previously Presented) The method of claim 17, wherein said purified and attenuated toxin is a mutant having an amino acid sequence of the corresponding natural toxin wherein one or more amino acid residues are substituted, inserted, deleted, and/or added, and having an adjuvant activity, so long as the mutant retains serine residues, glutamic acid residues, and lysine residues of the natural toxin, except that a formalin molecule is bound to the lysine residues of the attenuated toxin.
19. (Previously Presented) The method of claim 17, wherein said purified and attenuated toxin retains the amino acid sequence of the natural toxin, except that a formalin molecule is bound to the lysine residues of the attenuated toxin.
20. (Previously presented) The method of claim 17, wherein the residual toxic activity is less than one-ten thousandth (1/10,000) that of the corresponding natural toxin.
21. (Previously Presented) The method of claim 17, wherein the temperature does not exceed 40°C.
22. (Currently Amended) The adjuvant of claim 1, wherein said purified and attenuated toxin is selected from the group consisting of pertussis toxin, heat-labile toxin of pathogenic *E. coli*, Staphylococcus  $\alpha$  toxin and  $\beta$  toxin, thermostable hemolytic toxin of *Vibrio parahaemolyticus*, a mutant cholera toxin, ~~a mutant pertussis toxin~~, a mutant Staphylococcus  $\alpha$  toxin and  $\beta$  toxin, and a mutant thermostable hemolytic toxin of *Vibrio parahaemolyticus*.

23. (Previously presented) The adjuvant of claim 1, wherein the incubation in step (b) occurs at a temperature range of 5°C to 40°C.
24. (New) An adjuvant comprising a first and second toxin, wherein:
- (i) the first and second toxin have an activity of enhancing production of an antibody specific to an antigen, other than the attenuated toxin;
  - (ii) the second toxin is an attenuated toxin having a residual toxic activity of less than one-two thousandth ( $<1/2000$ ) that of a natural toxin corresponding thereto;
  - (iii) the second toxin retains serine residues, glutamic acid residues, and lysine residues of the natural toxin in its amino acid sequence;
  - (iv) a formalin molecule is bound to the lysine residues of the second toxin; and
  - (v) the first and second toxin are each selected from the group consisting of cholera toxin, pertussis toxin, heat-labile toxin of pathogenic *E. coli*, Staphylococcus  $\alpha$  toxin and  $\beta$  toxin, and thermostable hemolytic toxin of *Vibrio parahaemolyticus*, or a mutant thereof.
25. (New) The adjuvant of claim 24, wherein:
- (i) at least one of the toxins is a mutant of the corresponding natural toxin; and
  - (ii) the mutant toxin has an amino acid sequence differing from the corresponding natural toxin by the insertion, substitution, deletion, and/or addition, of one or more amino acid residues.
26. (New) The adjuvant of claim 24, wherein the first toxin is a natural toxin.
27. (New) The adjuvant of claim 24, wherein the second toxin is cholera toxin.

28. (New) The adjuvant of claim 24, wherein the residual toxic activity is less than one-ten thousandth ( $1/10,000$ ) that of the corresponding natural toxin.